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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,711	08/18/2003	Xiang-Dong Mi	86130AEK	4378

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Paul A. Leipold
Patent Legal Staff
Eastman Kodak Company
343 State Street
Rochester, NY 14650-2201

EXAMINER	
NEGRON, ISMAEL	

ART UNIT	PAPER NUMBER
2875	

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/642,711	MI ET AL.	
	Examiner	Art Unit	
	Ismael Negron	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☒ Claim(s) *1,5,15 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/18/03, 12/13/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Title

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Brightness Enhancement Article Having Trapezoidal Prism Surface**.

Abstract

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it uses phrases which can be implied. Correction is required. See MPEP § 608.01(b). The Examiner suggests amending lines 1 and 2 of the abstract to read: "A brightness enhancement article for conditioning luminance from a light source (18) in a viewing direction, such article including a ~~is provided. A~~ prism surface side (44) which collects".

Claim Objections

3. Claim 1 is objected to because of the following informalities: it recites the limitation "*trapezoidal prism element*" in line 4. There is insufficient antecedent basis for this limitation in the claim.

The cited lack of antecedent instances do not amount to indefinitiveness under 35 U.S.C. 112, second paragraph, since is readily apparent that the claim is referring back to the previously recited prism element, however, appropriate correction is required to place the claims in proper form for allowance.

4. Claim 5 is objected to because of the following informalities: line 2 should read "second ~~mutually~~ non-parallel planes has a reflective surface".

5. Claim 15 is objected to because of the following informalities: it recites the limitation "*the prisms*" in line 2. There is insufficient antecedent basis for this limitation in the claim.

The cited lack of antecedent instances do not amount to indefinitiveness under 35 U.S.C. 112, second paragraph, since is readily apparent that the claim is referring back to the previously recited prisms forming the second prismatic surface. In addition, the cited "prisms" could be confused with the "prisms" located on the light-receiving surface. Appropriate correction is required to place the claims in proper form for allowance.

6. Claim 15 is objected to because of the following informalities: it recites the limitation "*the prisms on the light receiving surface*" in line 3. There is insufficient antecedent basis for this limitation in the claim.

The cited lack of antecedent instances do not amount to indefinitiveness under 35 U.S.C. 112, second paragraph, since is readily apparent that the claim is referring back to the previously recited "prisms elements" located on the light receiving surface, however, appropriate correction is required to place the claims in proper form for allowance.

7. Claim 20 is objected to because of the following informalities: it recites the limitation "*said enhanced illumination*" in line 3. There is insufficient antecedent basis for this limitation in the claim.

The cited lack of antecedent instances do not amount to indefinitiveness under 35 U.S.C. 112, second paragraph, since is readily apparent that the claim is referring to the light output of the claimed "light enhancement article", however, appropriate correction is required to place the claims in proper form for allowance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite as the structural relationship between the claimed transparent polymer and the claimed brightness enhancement article is not defined by the claim language. The Examiner suggests amending the claim to read: "An article according to claim 1, said article being made of a material comprising a transparent polymer derived from an ethylene or acrylic monomer."

9. Claims 25 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between angles α and β with the claimed brightness enhancement article. It is noted that the claims attempt to define angles α and β results in a circular reference.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-9, 14-22 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by ARAI (U.S. Pat. 6,049,649).

ARAI discloses an illumination device having:

- **a brightness enhancement article (as recited in Claim 1)**, Figure 9, reference number 14;
- **the brightness enhancement article having a prism surface (as recited in Claim 1)**, as seen in Figure 9;
- **the prism surface being for receiving the light (as recited in Claim 1)**, As seen in Figure 10;
- **the prism surface including a series of spaced-apart prism elements (as recited in Claim 1)**, Figure 10, reference number 14c;
- **the prism elements having a substantially trapezoidal cross-section (as recited in Claim 1)**, as seen in Figure 10;
- **each prism element having a face plane (as recited in Claim 1)**, Figure 10, reference number 14g;

- **the face plane being disposed toward the incoming light (as recited in Claim 1)**, as seen in Figure 10;
- **each prism element further having a base plane (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane being larger than the face plane (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane being disposed away from the incoming light (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane connecting the base of the prism elements (as recited in Claim 1)**, as seen in Figure 10;
- **each prism even further having first and second non-parallel planes (as recited in Claim 1)**, Figure 10, reference numbers 14a and 14b;
- **the non-parallel planes extending back from the face plane to the base plane (as recited in Claim 1)**, as seen in figure 10;
- **each non-parallel plane forming an angle with the face plane of greater than 90 and less than 120 degrees (as recited in Claim 1)**, as evidenced by Figure 10;
- **the prism elements being formed by elongated V-shaped grooves (as recited in Claim 2)**, as seen in Figure 10;
- **a transparent polymer derived from an ethylene or acrylic monomer (as recited in Claim 3)**, column 10, lines 7-9;

- **the prism elements being spaced apart at substantially equal intervals (as recited in Claim 4)**, as evidenced by Figure 10;
- **at least one of the non-parallel planes having a reflective surface (as recited in Claim 5)**, as seen in Figure 10;
- **the reflective surface having at least one optical coating (as recited in Claim 6)**, inherent;
- **a filling within the space between the prism elements (as recited in Claim 7)**, as seen in Figure 10;
- **the materials forming prism structures being polymeric (as recited in Claim 9)**, column 10, lines 7-9;
- **the material forming the prism elements being air (as recited in Claim 14)**, as seen in Figure 10;
- **a second prismatic surface (as recited in Claim 15)**, Figure 11, reference number 15;
- **the second prismatic surface being on the viewing side of the article (as recited in Claim 15)**, column 12, lines 51 and 52;
- **the prisms being arranged in a first direction orthogonal to the prisms on the light receiving surface (as recited in Claim 15)**, column 12, lines 49-52;
- **the viewing side prismatic surface including a linear array of substantially triangular prism-shaped lens elements (as recited in Claim 16)**, as seen in Figure 11;

- **the prism-shape lens elements having longitudinal axes in a second direction along the second prismatic surface (as recited in Claim 16)**, as seen in Figure 11;
- **the second direction being orthogonal to the first direction (as recited in Claim 16)**, as seen in Figure 11;
- **the prismatic surface including two series of V-shaped grooves in directions orthogonal to each other (as recited in Claim 17)**, as seen in Figure 11;
- **the prism elements having a truncated-cone shape (as recited in Claim 18)**, as seen in Figure 21B;
- **the prism elements having a truncated-pyramid shape (as recited in Claim 19)**, as seen in Figure 18B;
- **a light modulator (as recited in Claim 20)**, column 1, lines 11-13;
- **the modulator being located in the path of illumination device for forming an image for display (as recited in Claim 20)**, inherent;
- **the light modulator being an LCD spatial light modulator (as recited in Claim 21)**, column 1, lines 11-13;
- **an LCD having the illumination device (as recited in Claim 22)**, column 1, lines 11-13.

Regarding the incoming light being Lambertian (as recited in Claim 8), feeding the claimed brightness enhancement article a specific type of light (e.g. Lambertian)

would amount to a recitation of the intended use of the patented invention, without resulting in any structural difference between the claimed invention and the structure disclosed by ARAI, and therefore fails to patentably distinguish the claimed invention from the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Method claim 26 was considered as inherently disclosed by the structural limitations of the patented brightness enhancement article of ARAI (as detailed in above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over ARAI (U.S. Pat. 6,049,649).

ARAI discloses an illumination device having:

- **a brightness enhancement article (as recited in Claim 1)**, Figure 9, reference number 14;

- **the brightness enhancement article having a prism surface (as recited in Claim 1)**, as seen in Figure 9;
- **the prism surface being for receiving the light (as recited in Claim 1)**, As seen in Figure 10;
- **the prism surface including a series of spaced-apart prism elements (as recited in Claim 1)**, Figure 10, reference number 14c;
- **the prism elements having a substantially trapezoidal cross-section (as recited in Claim 1)**, as seen in Figure 10;
- **each prism element having a face plane (as recited in Claim 1)**, Figure 10, reference number 14g;
- **the face plane being disposed toward the incoming light (as recited in Claim 1)**, as seen in Figure 10;
- **each prism element further having a base plane (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane being larger than the face plane (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane being disposed away from the incoming light (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane connecting the base of the prism elements (as recited in Claim 1)**, as seen in Figure 10;

- **each prism even further having first and second non-parallel planes (as recited in Claim 1)**, Figure 10, reference numbers 14a and 14b;
- **the non-parallel planes extending back from the face plane to the base plane (as recited in Claim 1)**, as seen in figure 10; and
- **each non-parallel plane forming an angle with the face plane of greater than 90 and less than 120 degrees (as recited in Claim 1)**, as evidenced by Figure 10.

ARAI discloses all the limitations of the claims, except:

- the pitch or distance between identical points in adjacent prisms being from 10 to 200 microns (as recited in Claim 10);
- the pitch being from 10 to 100 microns (as recited in Claim 11);
- the ratio of the height or orthogonal distance between the face plane and the base plane to the pitch being from 0.5 to 5 (as recited in Claim 12); and
- the ratio of the height or orthogonal distance between the face plane and the base plane to the pitch being from 1 to 2 (as recited in Claim 13).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use a prism pitch of 10 to 100 microns (as recited in claims 10 and 11), or a prism height to pitch ratio of 1 to 2 (as recited in claims 12 and

13), since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233.

12. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over ARAI (U.S. Pat. 6,049,649).

ARAI discloses an illumination device having:

- **a brightness enhancement article (as recited in Claim 1)**, Figure 9, reference number 14;
- **the brightness enhancement article having a prism surface (as recited in Claim 1)**, as seen in Figure 9;
- **the prism surface being for receiving the light (as recited in Claim 1)**, As seen in Figure 10;
- **the prism surface including a series of spaced-apart prism elements (as recited in Claim 1)**, Figure 10, reference number 14c;
- **the prism elements having a substantially trapezoidal cross-section (as recited in Claim 1)**, as seen in Figure 10;
- **each prism element having a face plane (as recited in Claim 1)**, Figure 10, reference number 14g;
- **the face plane being disposed toward the incoming light (as recited in Claim 1)**, as seen in Figure 10;

- **each prism element further having a base plane (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane being larger than the face plane (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane being disposed away from the incoming light (as recited in Claim 1)**, as seen in Figure 10;
- **the base plane connecting the base of the prism elements (as recited in Claim 1)**, as seen in Figure 10;
- **each prism even further having first and second non-parallel planes (as recited in Claim 1)**, Figure 10, reference numbers 14a and 14b;
- **the non-parallel planes extending back from the face plane to the base plane (as recited in Claim 1)**, as seen in figure 10; and
- **each non-parallel plane forming an angle with the face plane of greater than 90 and less than 120 degrees (as recited in Claim 1)**, as evidenced by Figure 10.

ARAI discloses all the limitations of the claims, except the LCD device having:

- two brightness enhancement articles (as recited in Claim 23);
- each article having a prismatic surface on their respective light receiving surfaces (as recited in Claim 23);
- the two prismatic surfaces being oriented orthogonal to each other (as recited in Claim 24).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to provide an LCD device with two of the brightness enhancement articles of ARAI, since it has been held by the courts that the mere fact that a given structure is integral does not preclude its consisting of various elements, and that constructing a formerly integral structure in various portions involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 178. In this case, ARAI discloses a brightness enhancement article having two prismatic surfaces, each prismatic surface being oriented orthogonal to each another. Providing such integral brightness enhancement article into two separate portions would involve routine skill in the art.

Relevant Prior Art

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Franck (U.S. Pat. 3,129,895), **Sato et al.** (U.S. Pat. 4,368,504), **Matsumoto et al.** (U.S. Pat. 6,502,947), **Okada** (U.S. Pat. 6,494,588), **Nilsen et al.** (U.S. Pat. 6,570,710), **Yamashita et al.** (U.S. Pat. 6,669,350) and **Umemoto et al.** (U.S. Pat. 6,693,690) disclose a plurality of illumination devices having brightness enhancement articles.

Allowable Subject Matter

14. Claims 25 and 27 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

15. The following is a statement of reasons for the indication of allowable subject matter: No prior art was found teaching individually, or suggesting in combination, all of the features of the applicants' invention, specifically the claimed prism elements geometric requirements for the absolute value of the cutoff angle, in combination with the claimed brightness enhancement article.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negron whose telephone number is (571) 272-2376. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea, can be reached on (571) 272-2378. The facsimile machine number for the Art Group is (703) 872-9306.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications maybe obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, go to http://pair-direct.uspto.gov. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197.

lnr

March 17, 2005

THOMAS M. SEMBER
PRIMARY EXAMINER